

Volume 5

Consumer Education Subaccount

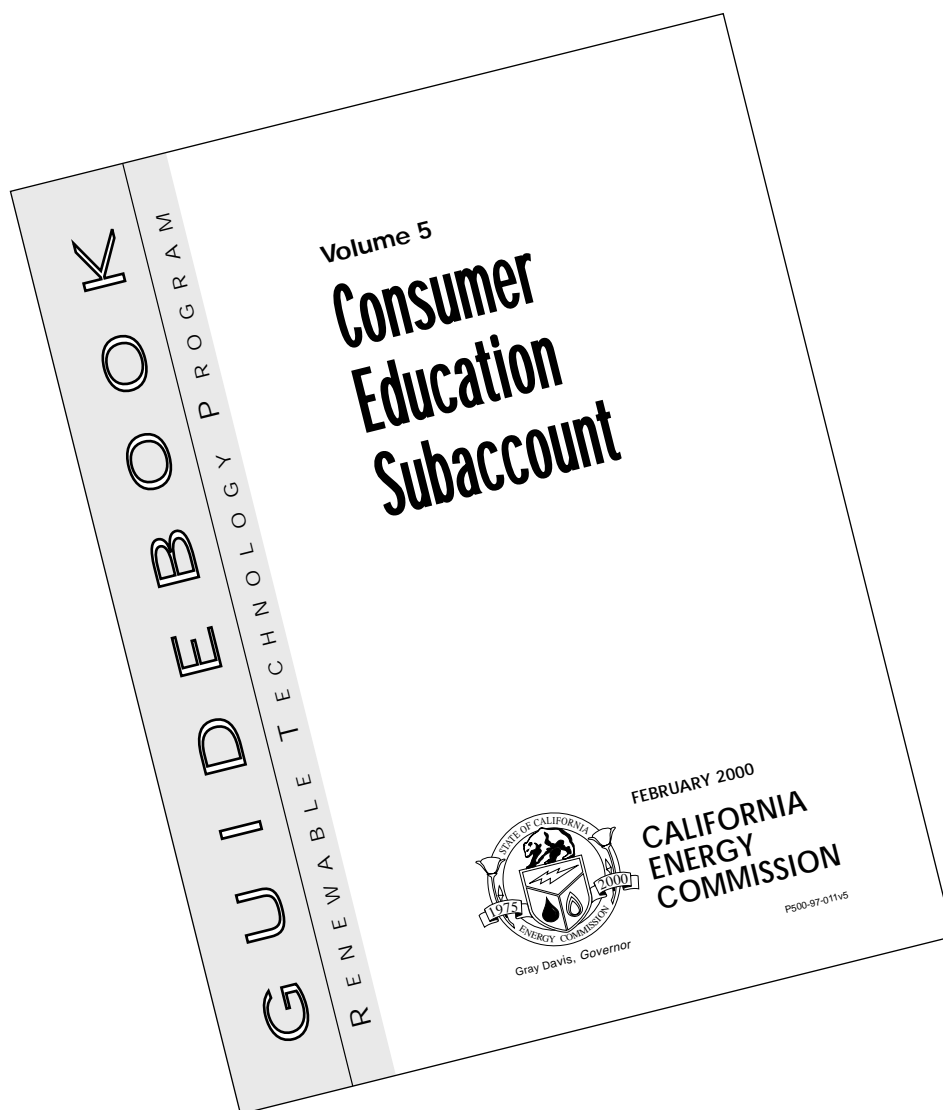


FEBRUARY 2000

**CALIFORNIA
ENERGY
COMMISSION**

Gray Davis, *Governor*

P500-97-011v5



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The California Energy Commission formally adopted these guidelines on February 9, 2000 pursuant to Senate Bill 90 (Chp. 905, Stats. 97).

This Guidebook addresses the eligibility, program requirements and funding processes for the Consumer Education Subaccount of the Renewable Resource Trust Fund. For more detailed information on the Renewable Resource Trust Fund, please see the Commission's Policy Report on Assembly Bill 1890 Renewables Funding. The report (Publication Number P500-97-002) may be obtained through the Commission's Publications Office at (916) 654-5200.

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Introduction

Assembly Bill 1890 (AB1890)¹, enacted on September 23, 1996, provides \$540 million to support renewable electricity generation technologies. These funds will be collected from the ratepayers of the three largest investor-owned utilities in California from 1998 through March 31, 2002, to support existing, new, and emerging renewable electricity generation technologies. As part of the requirements of AB 1890, the California Energy Commission (Commission) submitted a *Policy Report*² to the Legislature with recommendations for allocating the \$540 million.

Senate Bill 90 (SB 90)³, enacted on October 12, 1997, places the \$540 million into the **Renewable Resource Trust Fund**, and contains explicit directions for distributing this fund through four distinct accounts: the Existing Renewable Resources Account, the New Renewable Resources Account, the Emerging Renewable Resources Account, and the Customer-Side Renewable Resource Purchases Account (which is divided into the Customer Credit and Consumer Education Subaccounts). Table 1 shows the percentage funding allocations by year.

Table 1 - Yearly Allocations to Renewable Technologies⁴

Account	1998	1999	2000	2001	Overall	(in millions)
Existing Technologies	57%	49%	41%	33%	45%	\$243
New Technologies	24%	28%	32%	36%	30%	\$162
Emerging Technologies	10%	10%	10%	10%	10%	\$54
Customer-Side	9%	13%	17%	21%	15%	\$81

To assist potential participants in the Renewable Energy Program in applying for funding from the various accounts within the program, the Commission developed account-specific *Guidebooks*. These *Guidebooks* are identified as Volumes 1 through 5, with each volume corresponding to an account in **the Renewable Resource Trust Fund**:

- Volume 1 - Existing Renewable Resources Account
- Volume 2 - New Renewable Resources Account
- Volume 3 - Emerging Renewable Resources Account
- Volume 4 - Customer Credit Subaccount of the Customer-Side Renewable Resource Purchases Account
- Volume 5 - Consumer Education Subaccount of the Customer-Side Renewable Resource Purchases Account

In addition, the Commission developed *Overall Guidelines*, which set forth the administrative and legal requirements necessary to receive or appeal funding awards from the Existing, New and Emerging Accounts and the Customer Credit and Consumer Education Subaccounts.

This *Guidebook*, identified as *Volume 5 – Guidebook for the Renewable Energy Program, Consumer Education Subaccount*, addresses the eligibility, program requirements and funding processes for the Consumer Education Subaccount of the **Renewable Resource Trust Fund**. The Commission's Renewables Committee developed this *Guidebook* subsequent to numerous public workshops and hearings and after considering valuable input from interested stakeholders.

Overview of Consumer Education Subaccount

Senate Bill 90 directs that one percent of the renewables funds provided under AB 1890, or \$5.4 million, be used to support a consumer education and marketing campaign. The money is to be used “... to promote renewable energy and to disseminate information on renewable energy technologies ... and to help develop a consumer market for renewable energy and for small-scale emerging renewable energy technologies.”⁵ To this end, the Commission has initiated the Renewable Energy Consumer Education (RECE) campaign.

The RECE campaign has three goals: 1) to raise consumer awareness of renewable electricity generation options and their benefits, 2) to increase purchases of both renewable energy from the grid and small-scale “emerging renewables” installed on customer premises, and 3) to mobilize a self-sustaining education effort that will continue beyond the four-year transition period to a competitive electricity market.

The RECE campaign is expected to follow the *Renewable Energy Consumer Education Marketing Plan* that the Commission approved on February 17, 1999. This *Marketing Plan* was developed as part of a public process involving public workshops and hearings and the cooperation of interested stakeholders, as described below:

- The Consumer Education program purpose and proposed approach was presented at a workshop on October 20, 1997.
- A Proposed Workplan was sent for public comment on November 24, 1997, in preparation for a Committee Hearing on December 11, 1997.
- Initial suggestions for marketing activities and answers to specific questions were received at the public Committee Workshop on June 3, 1998.
- A Draft *Marketing Plan*, proposed by the Committee, was mailed on November 23, 1998 and comments were received at a Committee Workshop on December 7, 1998.
- The Commission approved the revised *Renewable Energy Consumer Education Marketing Plan* at a business meeting on February 17, 1999.

- On March 17, 1999, the Commission approved administrators to implement portions of the *Marketing Plan*, and an allocation of \$1.5 million from the Consumer Education Subaccount to fund the initial phases of the RECE campaign.

The Commission approved a funding allocation for the initial phases of the RECE campaign. Eighty percent was reserved for marketing and educational activities to promote the purchase of renewable electricity products over the grid. Twenty percent was reserved for marketing and educational activities to promote the purchase of emerging renewable generation technologies for on-site generation of renewable power. The Commission also approved the use of two designated program administrators: one for the renewable electricity products area and one for the emerging generation technologies area. The administrators would be charged with coordinating with Commission staff, conceiving promotional strategies, developing and producing marketing materials, and directing daily campaign operations.

In March 1999, the Commission entered into an agreement with a program administrator for the initial phase for the renewable electricity products area. At the end of the initial phase, in June 2000, the Commission, at the recommendation of the Committee, will decide whether to extend the entity's administration of the renewable electricity products area, or whether to pursue an alternative process pursuant to this *Guidebook*.

In February 2000, when this *Guidebook* was adopted, the Commission had not secured an administrator for the initial phase of the emerging generation technologies area. Consequently, the Commission will administer the initial phase through programs and activities funded pursuant to this *Guidebook*.

The remainder of this *Guidebook* builds upon the *Marketing Plan* to describe the procedures and constraints for funding projects from the Consumer Education Subaccount. The *Marketing Plan* is incorporated into this *Guidebook* as Attachment A. A copy of the *Marketing Plan* can be obtained by calling the Energy Call Center at (800) 555-7794 within California, or at (916) 654-4058 outside California. The *Marketing Plan* may also be downloaded from the Commission's Web Site at <<http://www.energy.ca.gov>>.

Program Eligibility Requirements

Individual projects, and programs comprised of multiple projects, may be eligible to receive funding from the Consumer Education Subaccount. In general, projects and programs should have the goal of providing information to consumers about renewable electricity products and emerging renewable generation technologies.

Information developed and/or provided through programs and projects funded by the Consumer Education Subaccount must be factual and broad-based, rather than specific to a product, manufacturer, or provider. To the extent possible, overall information developed and/or provided must not discriminate among renewable energy technologies nor tend to mislead consumers or other market stakeholders.

Eligible Topics

Projects and programs funded by the Consumer Education Subaccount must provide information to consumers or otherwise assist the delivery of products and services to consumers under one or more of the following eligible topics:

- 1) The generation, sale, and purchase of renewable electricity products in the California direct-access market.
- 2) The production, purchase, and installation at customer sites of emerging renewable generation technologies.
- 3) The environmental, local economic, reliability, diversity and other benefits of purchasing and/or generating renewable electricity in California.
- 4) Other topics that are approved in advance by the Committee consistent with the *Marketing Plan*.

Eligible Participants

Participants must meet one or more of the following criteria to be eligible for funding from the Consumer Education Subaccount:

- 1) Be a nonprofit corporation whose mission or expertise is consistent with the goals and purpose of the RECE campaign.
- 2) Be an individual or entity with marketing, public relations, consumer education, or public-interest marketing experience.
- 3) Be a public agency with experience or expertise in the topics described above.
- 4) Otherwise be approved in advance by the Committee consistent with the *Marketing Plan*.

Marketing Plan Requirements

Projects and programs funded by the Consumer Education Subaccount must conform to the goals and objectives of the *Marketing Plan*, and any subsequent modifications to the Plan.⁶ For example, project or program activities must fall under the marketing activities referenced in the *Marketing Plan* or a delivery mechanism subsequently identified and approved in advance by the Consumer Education Subaccount Manager.

Public Interest Requirements

Projects and programs funded by the Consumer Education Subaccount must be equitable to stakeholders and the general public. In general, information must be factual and broad-based, rather than specific to a product, manufacturer, or provider. To the extent possible, overall information developed or provided must not discriminate among renewable energy technologies, nor tend to mislead consumers or other market stakeholders. Overall guidance in achieving these goals is provided by the following general requirements; more specific requirements may be incorporated into individual solicitations governing program or project funding.

Projects and programs must be:

- 1) Inclusive in opportunity. The project or program must provide adequate and timely project or program information so that any interested market participants have an opportunity to coordinate with and/or participate in the project or program. This adequate and timely information may vary by the type of activity and will be determined in individual solicitations or by the Consumer Education Subaccount Manager. Funding may be provided to projects or programs where all appropriate entities have an opportunity to participate, even if not all entities elect to participate, or are invited to participate, but in the judgement of the Consumer Education Subaccount Manager the level and breadth of entity participation was reasonable given the circumstances.
- 2) Targeted to return benefits to ratepayers. The project or program must be primarily targeted to geographic areas served by the utilities whose ratepayers are paying into the **Renewable Resource Trust Fund**. Activities that are first targeted elsewhere may be funded if they result in products that can be used in the utility areas described above.
- 3) Inclusive in message. For a specific project or program funded, an activity must provide either generic information that applies to all relevant and known products or services, while not mentioning any specific product or service, or it must provide information about all relevant and known products and services.

For example, a campaign urging consumers to choose a renewable energy product in the direct access market should either provide generic information relevant to all product choices in that market, or if a specific product is listed or described, provide information about all relevant and known products that may be chosen. The requirement to provide information about all products does not preclude the campaign from providing or emphasizing information about logos, web-sites, or other pieces of information that distinguish among renewable electricity products for some public, non-commercial purpose.

- 4) Non-commercial. Funding for projects or programs cannot be provided directly to specific entities participating in the electricity market as sellers or traders of electricity services (including electric utilities), or specific entities that are selling, installing, or producing emerging renewable generation technologies.

Program Funding Requirements

Individual projects, and programs comprised of multiple projects, may receive funding from the Consumer Education Subaccount in the form of grants or contracts. Funding in the form of grants shall be made in accordance with and subject to the procedures, limitations and requirements specified in this *Guidebook* and any general or targeted grant solicitations to follow. Funding in the form of contracts shall be made in accordance with and subject to the procedures, limitations, and requirements set forth in this *Guidebook* and the Public Contract Code for the state procurement of goods and services. (See Part 2, Chapter 2 of the Public Contract Code, commencing with section 10290.)⁷

Matching Funds

Individuals and entities applying for funding from the Consumer Education Subaccount are expected and may be required to provide matching funds and/or in-kind contributions to the project or program for which they are seeking funding. The level of matching funds required will be specified in the solicitation document issued by the Commission. The solicitation document may provide for an exemption to the matching fund requirement under special circumstances.

Matching funds and in-kind contributions may originate from a variety of sources, including the applicant or other participants in the project/program such as industry or environmental stakeholders, public interest organizations, or local, state or federal governmental agencies. Matching funds and in-kind contribution may not originate from the Commission.

Matching funds and in-kind contributions may include, but are not limited to, the contribution of cash or its equivalent, or a contribution of indirect costs or other non-cash support, such as:

- in-kind services,
- use of equipment or office space,
- discounted rates, fees or charges, provided the contributions can be quantified and substantiated, and benefit the project/program work.

The form of matched funding will be determined on a case-by-case basis.

Solicitation Documents

Individuals and entities interested in receiving funding from the Consumer Education Subaccount must apply for funding pursuant to a general or targeted solicitation document issued by the Commission, at the direction of the Committee. A solicitation document will specify the amount of funding available and any per-project or program funding caps, the administrative requirements for submitting an application for funding, the elements to be included and addressed as part of the application, the criteria the Commission will use in evaluating applications, and the timetable to be followed in evaluating the applications and making awards.

In addition to the award and eligibility requirements specified above (see Program Eligibility Requirements section), a solicitation document may specify other eligibility requirements that must be satisfied to qualify for funding. For example, a targeted solicitation document focusing on Public Schools may specify that topics must be educational in nature, rather than promotional.

The solicitation document will also include a sample funding award agreement, in the case of a grant solicitation, and a sample contract, in the case of a contract solicitation, that awardees will be expected to execute. The funding award agreement or contract will identify the terms and conditions applicable to an award. These terms and conditions will include provisions dealing with the Commission's indemnification, funding award payments and invoicing, project/program management, progress reports, dispute resolution, and award termination, as well as any provisions required by statute.

Unless indicated otherwise in a solicitation document, applications for grant funding must include, at a minimum, the following:

- 1) Name, address, business and tax information (or identifier) of applicant/s;
- 2) Name, address, and business information of the project/program contact;
- 3) Description of project/program for which funding is sought;

- 4) An explanation of how the project/program complies with the solicitation and eligibility requirements and furthers the purpose of the Consumer Education Subaccount and RECE *Marketing Plan*;
- 5) A work statement that describes the project/program tasks, activities, and corresponding deliverables (products) and due dates;
- 6) An itemized budget for the project/program that identifies all related costs and expenses and anticipated matching funds, including the source and expected timing of said matching funds;
- 7) A certification by an officer of the applicant that the information included in the application is true and correct to the best of the officer's knowledge.

Applications or bids for contracts will require additional information as required by statute and specified in the solicitation document.⁸

Approval of Funding Awards

All proposed awards shall be approved based upon the recommendations of Commission staff that the applications for project or program funding have passed the eligibility requirements specified in the appropriate solicitation.

In accordance with the Commission's existing practice, grant awards and contracts of \$10,000 or less may be approved by the Committee with the concurrence of both Committee members. In the absence of such concurrence, approval by the full Commission is required. Grant awards and contracts greater than \$10,000 require the full Commission's approval.

The Committee shall inform the full Commission of any grant awards or contracts it approves pursuant to this *Guidebook* at the Business Meeting immediately following its approval of such grant awards or contracts.

Award Packages

Unless indicated otherwise in the solicitation document, the award package will consist of at least the following:

- 1) A funding award agreement or contract that includes the terms and conditions applicable to the award, and signature blocks for the awardee and Commission,

- 2) A work statement that provides a detailed task-by-task description of project or program activities,
- 3) A schedule of project or program activities and corresponding deliverables (products) and due dates,
- 4) An itemized budget for the project or program identifying all related costs and expenses and matching funds, including the source and expected timing of said matching funds.

Progress Reports

All awardees will be required to submit regular progress reports to the Consumer Education Subaccount Manager. The frequency of these progress will be determined on a case-by-case basis depending on the project or program being funded, but in no event will it be less than quarterly. The progress reports shall contain the following information:

- 1) Status of work statement tasks, including an indication of overall progress compared to the expected schedule and task goals;
- 2) Any deliverables (products) as identified in the work statement;
- 3) A comparison of program expenses to date to the expected budget;
- 4) A description of matching funds applied to the program.

Grant Award Extensions

The term of individual grant award agreements may be extended for projects or programs that can not be completed on schedule--provided the extensions are reasonable and do not appreciably affect the value of the projects or programs to the RECE campaign.

For example, a time extension would appreciably affect the value of a project to the RECE campaign if the project contemplated the production and targeted dissemination of brochures at a specific public event, and the extension allowed the brochures to be produced after the event had taken place. Such an extension would be unreasonable and would not be granted.

Awardees must request a grant award extension in writing at least 30 days prior to the end of the term date and provide a justification for the extension and a revised term

date. A grant award extension is at the discretion of the Consumer Education Subaccount Manager.

Changes to Grant Award Scope

Changes to the work statement, changes to specific line items in the budget, or both may be made under certain conditions. First, such changes must not alter the original scope or purpose of the project or program as proposed in the grant application and as approved by the Committee and/or full Commission. Second, such changes must not appreciably affect the value of the project or program to the RECE campaign. All changes are subject to necessary approval by the Consumer Education Subaccount Manager. The awardee shall notify the Consumer Education Subaccount Manager in writing and in advance of implementing any such changes.

Changes that the Consumer Education Subaccount Manager determines to be substantive, or cumulative transfers among budget line items that exceed 10 percent of the total grant award, require advance written approval of the Consumer Education Subaccount Manager. The solicitation document and award terms and conditions may provide additional description of award modification criteria.

Cancellation/Termination

Before signing a grant award agreement, the awardee may cancel an award for any reason by notifying the Commission in writing. After the grant award agreement has been executed, the Commission and the awardee may terminate a grant award agreement under those circumstances and terms and conditions specified in the grant award agreement.

Funding Award Payments

Unless indicated otherwise in the solicitation document or the funding award agreement or contract, funding award payments shall be subject to the following conditions:

- 1) Payments will be made on a reimbursement basis, after the awardee submitted the appropriate invoice to the Commission.
- 2) All invoices must be submitted with a completed payment request form, as specified by the Commission, and accompanied by all backup documentation and a progress report. The backup documentation should include copies of paid invoices and receipts and personnel time records where appropriate. The invoice and the progress report should include documentation about matching funds applied to the program.

- 3) The Renewables Program Manager or his or her designee must approve all invoices. Such approval is subject to the awardee's acceptable submittal of the required progress reports, other specified products, and the appropriateness of the invoiced expenses under the funding award agreement or contract.

Definitions

California in-state electrical corporations -- Pacific Gas and Electric Company, San Diego Gas and Electric Company, Southern California Edison, and any other electrical corporations contributing funds to the Emerging Renewable Resources Account of the Renewable Resources Trust Fund.

direct-access market -- the portion of the electricity industry in California involving acquiring and selling electricity to customers via a Direct Access Service Request, or by contracting directly with a nonresidential, non small-commercial customer, as defined in AB 1890.

electrical corporation -- see Section 218 of the Public Utilities Code.

emerging renewable generation technologies -- those renewable generation technologies specifically covered under *Guidebook Volume 3: Emerging Renewable Resources Account*, publication number P500-97-0011V3.

in-state renewable generation -- biomass, solar thermal, photovoltaic, wind, geothermal, small hydropower of 30 megawatts or less, waste tire, digester gas, landfill gas, and municipal solid waste generation technologies, as described in the *Policy Report on AB 1890 Renewables Funding*, including any additions or enhancements thereto, that are produced in facilities located in this state and placed in operation after September 26, 1996, or that were operational prior to that date, and that are also certified under Section 292.207 of Title 18 of the Code of Federal Regulations as a qualifying small power production facility either located in California, or that began selling electricity to a California electrical corporation prior to September 26, 1996, under a Standard Offer Power Purchase Agreement authorized by the California Public Utilities Commission.

investor-owned utility -- a utility that is organized as a tax-paying business, whose properties are managed by representatives elected by shareholders.

local publicly owned electric utility -- as defined in Public Utilities Code section 9604, subdivision (d), and which includes a municipal utility district, a public utility district, an irrigation district, or a joint powers authority made up of one or more of these entities.

municipal utility -- a local publicly owned (customer-owned) electric utility that owns or operates electric facilities subject to the jurisdiction of a municipality, as opposed to the California Public Utilities Commission.

renewable electricity product -- offering of electricity for sale in California where that offering is claimed to be comprised of a specific amount or type of electricity

generated by renewable sources, not including the electricity generated by renewable sources included in Net System Power.

Endnotes

¹ Chapter 854, Statutes of 1996.

² *Policy Report on AB 1890 Renewables Funding*, published March 1997, publication number 500-97-002.

³ Chapter 905, Statutes of 1997.

⁴ These percentages apply to annual amounts of \$135 million for four years as assumed in the *Policy Report on AB 1890 Renewables Funding*. Because \$135 million will not be collected in the early years, it may be necessary to borrow some funds from one account to make payments in another account equal to the absolute amounts expected annually in the Report. Borrowing will only be done if the account from which money is being borrowed is not adversely affected. All funds borrowed will be returned to their appropriate account.

⁵ PUC 383.5.e.2

⁶ Modifications to the *Marketing Plan* will likely be necessary to respond to market developments. As is the case with the other guidebooks, the Commission will adopt substantive modifications pursuant to a public process as specified in the Overall Guidelines.

⁷ Pursuant to this statutory authority contract awards may be made on a sole source basis without a formal solicitation.

⁸ As noted earlier, contracts may be awarded on a sole source basis without the need for a formal solicitation.

ATTACHMENT A

RENEWABLE ENERGY CONSUMER EDUCATION MARKETING PLAN

February 1999

**Renewable Energy Program
CALIFORNIA ENERGY COMMISSION**

P500-99-018

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Summary

This document presents a general marketing approach for the California Energy Commission's (Commission) Renewable Energy Consumer Education (RECE) campaign, a four-year, \$5.4 million education program mandated by Assembly Bill 1890¹ (AB 1890) and Senate Bill 90 (SB 90)² as part of electricity industry restructuring. The RECE program seeks to raise consumer awareness of renewable electricity generation options and their benefits, to increase purchases of both renewable energy from the grid and small-scale "emerging renewables" installed on customer premises, and to mobilize a self-sustaining education effort that will continue beyond the four-year term of the Commission's program.

Aided by select advisory consultants, Commission staff, under the direction of the Renewables Program Committee (Committee), will manage the program, which will be administered by non-profit organizations representing the interests of both the renewable energy and emerging technology sectors of the renewables industry. In view of the different promotional needs of grid power and distributed generation systems, the RECE campaign establishes separate action plans and program administrators for these elements, with coordinated educational and promotional activities as practical. Promotion will include grassroots outreach, public relations, targeted media, and, in the later years, mass media. Initial efforts will focus on reaching "early adopters"—those audiences most likely to purchase renewables—who can, in turn, help spread the word to a wider market.

Efforts will be made to leverage and match program funds by at least 4:1 by private and public co-funding and in-kind assistance by the end of the program. Funds will be allocated and disbursed in 15- to 18-month intervals based upon the results of formal performance evaluations, market developments, and procurement of co-funding.

I. Background

In restructuring California's electric utility industry, AB 1890 provided \$540 million to be collected from ratepayers of the major investor-owned utilities (IOUs) to foster the competitiveness of a renewable energy market during the initial transition years from 1998 to 2001. SB 90 placed these funds in a Renewable Resource Trust Fund, to be administered by the Commission, with explicit allocation of these monies.

One-fourth of the funds has been reserved for customer-side price supports during the transition years. The Customer Credit program provides up to 1.5¢/kWh for purchases of qualifying renewable energy from the grid, while the Emerging Renewables Buydown program subsidizes the purchase and installation of renewable energy technologies on the customer site. SB 90 earmarked 1% of the renewables funds—or \$5.4 million—for consumer education. As established by SB 90, the purpose of such education is to “promote renewable energy and to disseminate information on renewable energy technologies, including emerging renewable technologies, and to help develop a consumer market for renewable energy and for small-scale emerging renewable energy technologies.”³

As defined in AB 1890, renewables include the following technologies:

- Biomass
- Digester gas
- Geothermal
- Hydroelectric (30 MW or less)
- Landfill gas
- Municipal solid waste
- Photovoltaic (PV)
- Solar thermal
- Waste tire
- Wind

“Emerging renewables” are defined as:

- Fuel cells that convert renewable fuels into electricity
- Photovoltaic systems

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- Solar thermal electric systems
- Wind turbines ≤ 10 kW

To be eligible for the Commission's Buydown program, these emerging distributed technologies must also be on grid-connected customer sites in IOU service areas.

The authorizing legislation is clear that the education effort shall address both larger-scale renewables and smaller-scale emerging technologies; however, there is no specific guidance on allocating the \$5.4 million in terms of specific technologies to be promoted, the customer class or geographic region to be targeted, or the type of educational activity (brochures, presentations, media buys, etc.) to be conducted. This proposed marketing plan provides that guidance, sufficient for project administrators to develop detailed implementation plans.

II. Goals of Education Campaign

In light of the mandate set forth by SB 90, the RECE campaign seeks to raise consumer awareness of renewable energy options so as to increase purchases of both renewable energy from the grid and "emerging renewables" that are installed on customer premises. To these twin goals of raising awareness and changing behavior, we add a third: leveraging the value of the education campaign itself. Thus, the RECE campaign has three principal goals, as elaborated below:

Goal 1. Increase consumer awareness of renewables

Objectives

- Make California "early adopters" aware of consumer energy choice, renewable energy options, the environmental benefits of renewables, and how to purchase renewables
- Expand this awareness to wider audiences

The aim is to provide the knowledge necessary to make an informed purchase, rather than detailed technical knowledge of how different renewables operate. RECE materials will therefore focus on defining renewable energy and discussing its

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environmental, energy security, and economic development benefits, emphasizing the availability of consumer choice and renewable options, and directing consumers toward detailed assistance with signing up to purchase renewable energy or purchasing and installing their own renewable system.

Goal 2. Increase purchases of renewables

Objectives

- Reach full subscription of funds allocated for Customer Credit rebates effectively by end of program
- Expend all funds allocated for Emerging Renewable Technology systems effectively by end of program
- Create an ongoing, sustainable demand base

Beyond raising awareness, the program aspires to “grow” the renewables marketplace by increasing consumer demand. Accordingly, our prime objectives are to expend all funds allocated to Customer Credit for renewable energy purchases (\$75.6 million) and all funds allocated to emerging renewable technology buydowns (\$54 million) by the end of the program. Although it would seem easy to give away money, these are ambitious objectives. Meeting these objectives will depend upon (1) the ability of the RECE campaign and other stakeholders’ efforts to ignite consumer demand for qualifying renewable products and (2) the willingness of the electric service providers (ESPs) to offer qualifying products. Similarly, expenditure of buydown subsidies sets a high bar for emerging renewables, requiring purchase of at least 32 MW of grid-connected capacity (total capacity, not specified as to distribution among the qualifying technologies).⁴

Because not all “renewables” purchases (as advertised by ESPs and perceived by consumers) qualify for these two programs, activity in these programs will underestimate overall market activity. Nonetheless, we have selected these subsidy programs as our yardstick of consumer demand for several reasons:

- Activity in these programs is readily measurable. Indeed, subscription to these programs may be the simplest and most realistic measure available to the Commission. (Each month ESPs must report the number of direct access switches to the California Public Utilities Commission [CPUC], but do not divulge how many consumers signed up for a particular product.)

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- The education effort should support the co-mandated programs in the Renewable Resource Trust Fund.
- Because these subsidies largely exclude out-of-state generation, they serve as fairly reliable indicators of net environmental and energy resource benefits for the state.

Goal 3. Leverage the value of the education campaign

Objectives

- Achieve match of SB 90 funds by at least 4:1 by the end of program
- Seed an ongoing education campaign that will carry on after the four-year transition period

The Commission's budget of \$5.4 million by itself is not sufficient to conduct an effective, multi-year, statewide campaign. Accordingly, the limited RECE funds can best be used as seed money to mobilize organizations that have a long-term interest in renewable energy. By working through knowledgeable existing groups with established networks and funding, the Commission can greatly leverage its outreach—and in a way that creates an ongoing legacy of expanded educational efforts even after SB 90 monies are spent. From this perspective, the Commission prefers to conduct the campaign directly through a network of renewables stakeholders and public interest groups with assistance from marketing/communications experts as necessary.

III. Two Action Paths: Renewable Energy Market and Emerging Renewable Technologies

Both grid-managed (marketed) renewable energy and distributed generation (emerging renewable technologies) options offer similar environmental and energy security benefits. From a consumer perspective, however, they are markedly different, as illustrated in Table 1.

Table 1. Comparison of Renewable Energy Market and Emerging Renewable Technologies as Consumer Products

**Renewable Energy Consumer Education
Marketing Plan
February 1999**

RENEWABLE ENERGY MARKET	EMERGING RENEWABLE TECHNOLOGIES
Electricity from grid	Small-scale distributed generation on customer side of meter
DIFFERENT PRODUCTS	
Familiar “meter” service from an ESP	Distributed generation systems owned and operated by customer
Costs about \$10/month extra for average household (minimal investment risk)	High capital investment with 20+ year payback (high investment risk)
Invisible electrons; indistinguishable from current electrical service (except for receiving a separate bill in some cases)	Obvious “green” power with pride appeal
“Switch” effort similar to switching phone companies	Implementation requires more extensive planning (sizing, vendors, contractors, permits, financing, etc.)
DIFFERENT MARKETS	
Both property owners and renters	Property owners with long-term interest
Need to raise only monthly surcharge; not locked into a decision for more than a few years, if any	Able to raise significant capital (thousands or tens of thousands of dollars)
Interested in clean, sustainable energy or perceive PR benefits from supporting clean renewable energy	Interested not only in environmental benefits, but also in perceived reliability of on-site generation
DIFFERENT MARKETING STRATEGIES	
Any grid-connected location	Some geographic restrictions (resource availability, zoning laws)
Grassroots, public relations (PR), and mass media	Grassroots, PR, and highly targeted media

As evident from Table 1, purchased renewable energy appeals to a wider market, while emerging renewable technologies appeal to a more limited, specialized market, necessitating different messages and dissemination tools. Although some basic educational and marketing efforts will overlap and complement, these two options are different enough to warrant separate analysis and action plans. A detailed situation analysis for the renewable energy and emerging technology markets is provided in Appendix A to this report.

IV. Program Management

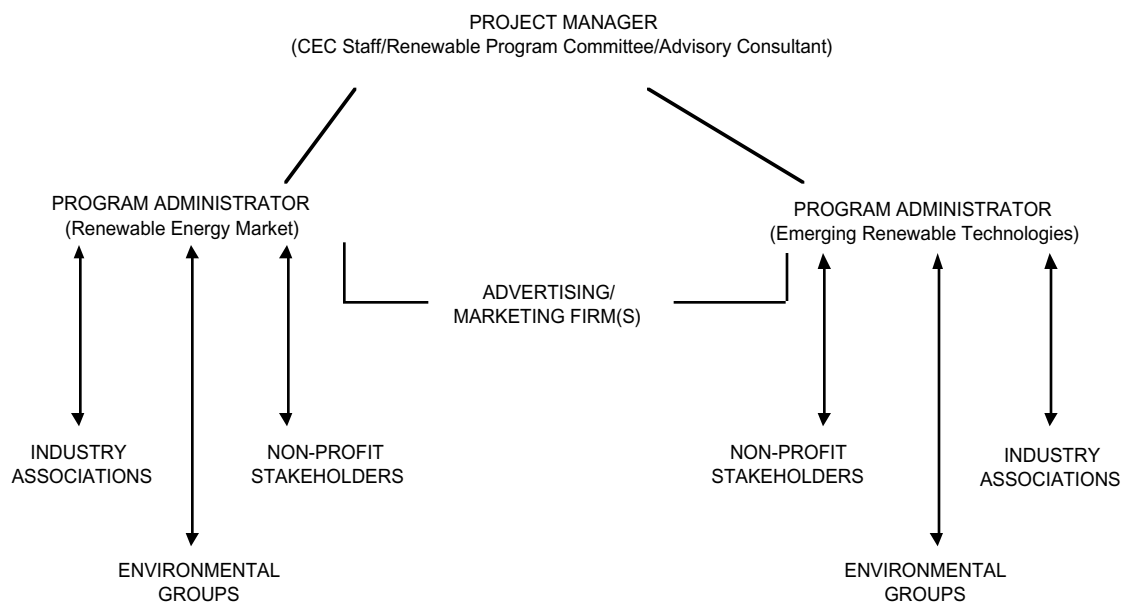
The Commission plans to administer the RECE program through existing renewable industry stakeholders and public interest groups—preferably through a coalition of nonprofit organizations representing the interests of the renewable energy and emerging technology markets. This strategy lends several important advantages:

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- Leverage of the Commission's expertise and reputation with additional knowledge, networks, and resources
- Mobilization of committed organizations that will carry on the education effort after the SB 90 funds are spent

The RECE Program will be managed in a coordinated manner as outlined in Figure 1.

Figure 1: RECE Program Management



Role of the Energy Commission, Staff and Consultants

As indicated in Figure 1, the Commission, through the direction of the Renewables Program Committee and staff project manager, will oversee the program, assisted by

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advisory consultants with expertise in renewable technologies and marketing. Ensuring coordination with the other Renewable Resource Trust Fund programs, the CPUC energy education and other local, state and federal renewable energy education programs, the Commission will affirm basic program direction and review all the educational and promotional strategies, activities, and collateral developed by the RECE program administrators. The Commission staff will also oversee program evaluation and recommend to the Renewables Program Committee the allocation of funds based on results.

Role of the RECE Program Administrators

The RECE program administrators will conceive promotional strategies, produce collateral, and direct daily operations. In addition, the administrators will be responsible for leveraging the state's \$5.4 million by at least 4:1 by the end of the program. Matching funds can include in-kind support (labor, office space, etc.) as well as private and public cofunding. The program administrators will report regularly to the Commission project manager, and assist with program evaluation conducted by the Commission staff and an outside contractor.

Although the renewable energy market and emerging renewables industry call for different promotional strategies, there are advantages to coordinating outreach activities, such as:

- Common message development when practical (e.g., education on environmental impacts)
- Use of same public relations specialist
- Enhanced opportunity to join forces between market sectors to strengthen market introduction of renewables in general

Given the differing promotional strategies required, the Renewables Program Committee has recommended two program administrators, each demonstrating the following attributes:

- Non-profit organization supported and trusted by the renewables industry, but free from the appearance of serving any particular industry segment
- Expertise and ongoing interest in the renewable energy and emerging renewable technologies markets

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- Ability to bring together and work with a broad base of stakeholders and public interest groups representing renewable energy and emerging renewable technology markets and consumers
- Demonstrated marketing expertise and success (grassroots, targeted outreach and paid media campaigns) incorporating consumer education and energy marketing principles
- Skill and ability to obtain cofunding and potential to achieve 2:1 matching funds through first year of program

The Committee recognizes that the disparate interests of renewable energy market and emerging renewables sectors of the industry require primarily separate education and promotion campaigns. At the same time, the Committee believes that obtaining close cooperation or buy-in from the respective groups and coordinating messages and costs of mutual benefit is essential to effectively leverage limited resources.

V. Allocation and Distribution of Funds

In contrast to other Renewable Resource Trust Fund accounts, SB 90 is silent on specific allocation and distribution mechanism guidelines for the Consumer Education Subaccount funds.

The Committee recommends an initial disbursement up to \$1.5 million for the first 15 months of funded program activities. This initial fund distribution will be allocated approximately 80/20 percent between the renewable energy market and emerging technologies campaigns, respectively. This allocation is based on preliminary projections of relative costs of campaign products and activities and also takes into account costs and effort for coordination of shared message development materials and other activities serving the two campaigns' common or overlapping educational and marketing goals. Subsequent disbursement and allocation of funds will be determined by the Renewables Program Committee based on program evaluation criteria developed with the assistance of independent contractors and ongoing assessment of market conditions and unforeseen developments.

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The Committee has set targets for the leveraging of program funds that the program administrators will be responsible for achieving. A 2:1 matching of funds, through private and public co-funding and in-kind assistance, is expected to augment the initial disbursement of funds. After the initial phase of implementation activities, funds will be allocated in 15- to 18-month intervals based upon the results of program evaluation (including success at procurement of co-funding) and ongoing assessment of market developments. By the end of the program, matching fund levels of 4:1 are expected.

VI. Marketing Mix

The marketing mix defines the essential elements of the campaign effort. The four basic elements of the RECE marketing mix are product, price, distribution, and promotion.

Product

Note that the Commission's product in this campaign is not the renewable energy product offerings or the emerging renewables technologies themselves. Rather, the Commission's product is information: information about renewable energy and technologies, and information that breaks down barriers to purchase—and thereby increases sales—of renewable energy offerings and emerging renewable technologies. It is imperative that this information be accurate, unbiased, and trustworthy, and that it address the concerns of the targeted markets consistent with the direction of SB 90. It should also complement related educational efforts by the CPUC, other government agencies, nonprofit groups, and industry.

To help consumers recognize and become familiar with the state's renewable energy program, the various information products identified with the Commission should maintain a standard graphic look. However, not all information needs to be directly linked with the Commission, as some target audiences have reported distrust of information from government, and some of the work can be effectively implemented by third-party organizations through their existing program materials (e.g., environmental newsletters).

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Price

All RECE information products will be free of charge to the consumer. This means the Commission and other partners will carry all costs related to the education campaign. These include reasonable costs for developing and maintaining information products (hotlines, websites, brochures, fact sheets, media kits, videos, advertising), salaries of outreach and PR coordinators, rents, and other direct charges.

Distribution

The RECE campaign will strengthen and link the existing information networks to economically expand consumer access to reliable information. Distribution points to be considered include:

- Toll-free hotlines
- Websites
- Personal presentations to targeted groups; informational booths at fairs and conferences
- Targeted media and public relations: press, TV, radio, signage
- Trade and association journals, newsletters of targeted organizations
- Possibly direct mail (a potentially cost-effective way to reach specific markets, if carefully managed)
- Utility bill inserts

Promotion

In keeping with the different promotional needs of renewable energy markets and emerging renewables, the RECE campaign entails separate action plans for promoting these options. Both promotions take a phased approach, starting with the most receptive audiences (“early adopters” and “innovators”) in limited geographic areas in each IOU territory. The promotion will gradually expand the campaign to early adopters in broader geographic areas, and finally, to broader, mass audiences.

In both action plans, the initial phases will employ targeted grassroots outreach, public relations, and targeted placement of articles/advertising. By building a

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foundation before committing significant funds to mass marketing, RECE gains several advantages:

- Mass audiences will have gained better awareness of choice and renewable energy options through the public relations and statewide educational campaigns
- Messages will have been tested and refined with the early adopters
- Early adopters can reinforce marketing messages
- ESPs will have had a chance to modify product offerings to qualify for Customer Credit and gain better public relations

Ongoing informal assessment will allow RECE efforts to be adjusted mid-course, while formal program evaluations at 15- to 18-month intervals will determine the effectiveness of program activities.

Action plans for both promotions are outlined below. The RECE program administrators will be charged with developing more detailed activity schedules and budgets based on final action plans and actual costs for labor, materials, production, ad placement, and other direct charges. Action plans must be flexible to accommodate field experience and unforeseen events or opportunities.

Renewable Energy Market Action Plan

Phase 1: Focus on early adopters (15 to 18 months)

This effort will build on previous work by existing organizations (e.g., REMB, CEERT, NRDC, EDF, Global Greens, CRS, etc.) to create momentum among audiences most likely to purchase renewable energy. Activities would include:

- Prepare RECE campaign infrastructure (coordinating with existing hotline, website, branding programs, etc.)
- Conduct public relations campaign (media outreach, communications coordination)
- Conduct targeted outreach (presentations, articles, mailings, etc.) to likely “early adopters”—e.g., environmentalists, interested local governments, progressive business groups, cooperatives, educational institutions

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Phase 2: Expand to broader audience (remainder of campaign)

Based on the field experience of Phase 1, the RECE efforts will branch out to a wider audience using mass media, both unpaid (PR and public service announcements [PSAs]) and paid advertising.

- Continue PR campaign
- Continue outreach to receptive audiences
- Launch mass media campaign of PSAs and ads (radio, TV, and signage; start with a pilot program in each IOU area, then refine and extend based on results)
- Conduct other activities identified through field experience (perhaps helping small businesses and other groups form aggregation pools)

Emerging Renewables Action Plan

Market information for emerging renewables is incomplete, necessitating preliminary market research in Phase 1. The next phases will focus on getting information out to innovators, who we anticipate to be environmentalists, technophiles and architect/engineers, and housing developers. A final, third phase of the campaign will identify the next tier (“early adopters”) and extend outreach to this audience; depending on the market situation, this phase could also entail geographically limited mass marketing. Activities may include:

Phase 1: Market Research and Infrastructure Development (initial 6 months)

- Design and conduct market research; determine best target markets
- Create consumer support tools
- Educate distribution channel
- Conduct early PR as newsworthy opportunities arise

Phase 2: Conduct Outreach to Innovators (summer 1999)

- Operate and maintain hotline and website
- Create print ads for trade and environmental publications and other collateral (detailed pamphlets on technologies, brochures, giveaways, etc.)
- Create traveling PV exhibit; attend fairs
- Hold media-public relations events (one per year, same event as for renewable energy)

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- Continue PR: identify and place stories; track and “correct” media coverage
- Run print ads in targeted publications
- Make presentations to target audiences as determined by market research in Phase I (speeches, papers, participation at trade association meetings).
Anticipated target groups of innovators and “early adopters” could be:
 - Environmentalists, technophiles
 - Architect/engineers
 - New residential and office building developers, real estate firms and cooperatives
 - Consumers seeking secure, uninterruptible power supply
- Assist efforts by others (no product-specific)

Phase 3: Expanded Early Adopters Outreach (start around Oct/00)

- Continue PR efforts and outreach
- Adjust activities, messages, and collateral based on prior results
- Consider very targeted PSAs and paid advertising

VII. Program Evaluation

Ongoing evaluation of the effectiveness of the RECE campaign will allow the Commission and project managers to assess progress toward program goals and determine whether the goals and program design are realistic. By providing a measure of the success of the RECE strategies and messages, evaluation also sheds light on the need to refine these elements to maximize future success, and offers an objective basis for allocating funding to greatest advantage. Finally, evaluation findings give the Legislature and public a quantifiable measure of not only the success of the campaign, but also ultimately, the environmental and resource conservation benefits of the RECE campaign to the State of California.

Measuring Progress Toward Goals

Like the rest of the marketing plan, the evaluation program must be grounded in the overall goals of the RECE campaign:

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- Increased awareness of renewable energy offerings and emerging renewable technologies as purchase options
- Increased purchases of renewable energy offerings and emerging renewable technologies (expend all Customer Credit and Buydown funds)
- Seeding of a self-sustaining education campaign on renewable energy purchase and emerging renewable technology options

Table 2 below recommends ways to measure progress toward achieving these goals:

Table 2. Suggested Measurements of Success

Goal	Measurement Technique
Increased awareness of renewable energy/emerging renewables as a purchase option	<ul style="list-style-type: none"> • Pre-and post-surveys (phone or written) • Increased traffic on selected hotlines and web pages • Increased PR coverage • Message dissemination
Increased purchases of renewable energy and emerging renewables	<ul style="list-style-type: none"> • Full subscription of all Customer Credit and Emerging Buydown funds by end of program
Mobilize network of committed organizations that will assume financial and management responsibility for ongoing promotion	<ul style="list-style-type: none"> • CEC observation of activity level of key players, quantifying co-funding and in-kind support • Match SB 90 funds by 4:1 by end of program • Ongoing financial reports from Consumer Education program administrators

As the action plans are both finalized and refined, the Commission and project managers may further define indicators for determining how well the program goals are being met. Other quantifiable factors to examine include:

- The amount and type of unpaid publicity or media outlets
- The increase in the number of hits to the websites and hotlines
- Growth in expenditure of Customer Credit and Emerging Buydown funds
- The amount of matched funding and the number and types of organizations providing co-funding
- Number of customers (residential, business, large commercial/industrial, institutions) switching to “green” power sources

It is recommended that the evaluation focus on measuring a change in awareness and consumer behavior, rather than the degree to which the RECE campaign alone affected that change. Quantifying the exact amount of market change attributable to a promotion is simply impossible. The most cost- and time-effective means to deal with this uncertainty is to focus evaluations on awareness and behavior change, hypothesize that the RECE efforts played a role in the overall behavior change.

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Where appropriate, survey questions can be included to determine whether the consumer was influenced by the campaign.

Baseline surveys measuring consumer awareness of renewable energy and emerging renewables will be conducted by an independent contractor. These are already in the design stages, and staff are reviewing the survey tools and content to ensure that the RECE's campaign's effectiveness can be evaluated. The baseline evaluation work for the Customer Credit and Emerging Buydown programs will be designed so as to assess related issues affecting the market: stakeholder actions to improve the market; customer awareness of the products and technologies, relative benefits and costs, purchase incentives, distribution channels; and efficiency of the Commission's incentive programs and ways to improve those incentives. Subsequent surveys will measure changes from these baseline "snapshots" of the market.

Program evaluation activities will be synchronized with the major phases of the respective action plans. Funding for the evaluation effort will not come out of the RECE budget, but rather from separate Commission technical support contract funds.

Appendix A

I. Situation Analysis: Renewable Energy Market

Market Climate

Window of Opportunity in an Uncertain Market

California leads the nation in renewable energy production, accounting for about a third of the nation's renewable generation. Electricity industry restructuring has both hurt and helped the state's renewable supply. After a construction boom spurred by the Public Utilities Regulatory Policies Act of 1978⁵ (PURPA) and integrated resource planning requirements, California's renewable generation has declined since 1993, while the industry awaited the outcome of deregulation rulings. With open markets now a reality and natural gas prices so low, even existing renewables face a steep competitive challenge. Construction of new generation facilities is risky business in this uncertain market.

On the other hand, with the provision of special operation and construction subsidies, AB 1890 is responsible for a renaissance in renewables construction. To date, 55 projects representing 510 MW of new renewable capacity have been bid and conditionally awarded subsidies pursuant to the Commission's New Renewable Resources Account auction. Potentially, this represents an increase of nearly 8% over the state's existing renewable capacity of some 6,600 MW.⁶

Moreover, restructuring has opened the possibility of a competitive renewable energy market. Given AB 1890's mandated 10% rate cut for residential customers of the IOUs over the next few years, "green-ness" is virtually the only distinguishing product variable affording ESPs an entrée to the residential market. With price restrictions, renewable generator subsidies, and offsets for renewable price premiums, AB 1890 has created a special window of opportunity for renewables through 2002. It is upon this opportunity that the RECE campaign must capitalize.

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Renewables Advocates Already Primed

Fortunately, the RECE program does not start in a vacuum. Environmental and marketing groups have already launched their own educational and marketing campaigns to persuade the public to vote for clean energy with their electricity dollars. The state-mandated power content label as well as the Green-e logo can help answer consumer questions about energy content and alleviate the type of confusion encountered in the New England and retail market pilots in other states.

Renewable Energy Marketers Waiting for Public Demand

Ironically, one of the greatest difficulties in gaining market momentum may be the ESPs themselves, who have been slow to commit to full-scale marketing efforts. There are plenty of players: 15 providers (not counting Sacramento Municipal Utility District) are active, offering more than two dozen products. To date, however, most products represent sale of existing renewable resources that were already part of California's generation mix. Without greater emphasis on new construction that will result in net environmental benefits, there is danger that even the most environmentally committed customers may become disillusioned and revert to their utility distribution company. Yet renewable energy marketers remain understandably cautious, waiting for proven consumer demand to "pull" the market for renewable energy.

Public Slow to Switch

Most renewable ESPs are focusing on the residential market. To date, 69,000 residential consumers—less than 1% of those eligible to switch—have changed their electric service provider; it is not known how many of these are "green" switches. By contrast, the industrial sector is healthily exercising its newfound choice; as of September, almost 16% had switched providers.

The low initial response should not be mistaken for disinterest in renewable energy. New products naturally have a slow initial diffusion rate; further, most Californians are only vaguely aware of their "choice" and how to exercise it, much less the availability of renewable energy products.

Numerous surveys confirm widespread public interest in renewable energy.⁷ Nevertheless, renewable energy faces a number of market barriers—some specific to renewable energy itself, some endemic to "switching" service providers. Such hurdles include:

- Lack of awareness about choice and how to switch

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- Fear of switching—losing reliability
- Automatic rate reduction and competitive transition charge
- Price premium for renewable energy
- Indistinguishable electrons: paying for a public good, not private good
- Inertia/effort to research renewable energy alternatives
- Lack of knowledge regarding the environmental impacts of electric generation and the benefits of renewables
- Distrust of power companies; wariness of “greenwashing”
- Cynicism about making a difference

The RECE campaign is well positioned to address these barriers. The challenge will be to create enough momentum during the transition window of opportunity to establish an ongoing renewable energy market. Market barriers aside, clean renewable energy is appealing to many Californians.

Market Potential

All grid-connected customers—industrial, commercial, agricultural, and residential—are potential purchasers of renewable energy. In theory, the only limits on the renewable energy market are the constraints inherent in renewable technologies themselves—resource availability, dispatchability, and cost—and marketing effectiveness. In reality, of course, the renewable energy market is in its infancy and will take many years to reach its potential. Which electricity customers, then, are the best target markets in these early years?

Geography

Pursuant to AB 1890 and SB 90, only customers in the IOU service territories currently have complete freedom to choose their electricity supplier and are the only customers that may apply for Customer Credit rebates. Accordingly, the RECE campaign will focus on these areas.

However, outreach should not be limited to these areas. Various municipal utilities are voluntarily opening to competition and/or offering their customers renewable energy products (e.g., Sacramento, Alameda, and Los Angeles). There may be a useful role for RECE in selected communities, particularly where local governments have expressed interest in renewable energy contracts (e.g., Santa Monica, San Jose,

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and Palm Springs). Outreach efforts should be coordinated with organizations already established to meet the needs of local and regional governments, such as the Local Government Commission.

Customer Class

Industrial and Large Commercial (I/C). These high-volume accounts are very important to the survival of renewable energy marketers and crucial to creating demand for new renewable capacity. The potential gains are significant; however, it may not be as productive for the RECE campaign to directly target individual accounts, as these customers are individually courted by ESPs offering custom-negotiated contracts. It is appropriate, however, for the Commission to encourage corporations to follow the lead example of Patagonia or Toyota, which are offering their employees a discount if they sign up for renewable energy at home, and to follow up with large I/C accounts in terms of education among their employees.

Small Commercial. Strapped for cash, time, and resources, most small businesses are less likely to be “early adopters” of renewable energy. However, businesses with an environmental, health, or “outdoorsy” image, or who cater to a progressive clientele, may be inclined to choose renewable energy as a public relations (PR) tool. And because many small businesses don’t use that many kilowatt-hours, they may be willing to accept a surcharge for the sake of personal beliefs.

Institutional. As highly visible organizations with automatic PR value, government, schools, and churches are attractive accounts. Local government and churches have already expressed interest and are promising initial markets.

Agricultural. The agricultural sector account for less than 4% of the IOUs’ load, and about only 1% of direct access activity through September.⁸ Apart from organic farmers (who will likely make their decisions regardless of RECE) and cooperatives (see aggregators below), this sector is not promising as an initial market.

Residential. Accounting for a third of the state’s electrical load—more than 50 billion kWh in the IOU territories—residential customers are anticipated by ESPs to provide the majority of renewable energy sales. Of all customer classes, residential consumers report the highest interest in renewable energy, with upwards of 60% surveyed stating willingness to pay a premium for renewable energy.⁹ Although good intentions on a survey are quite different from taking action, such market research is valid in terms of assessing general receptiveness. Moreover, the financial

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risks are lower for the residential sector: energy bills are not a high percentage of the monthly budget, and households needn't worry about competition or shareholders. Accordingly, many households, if convinced of the benefits, are likely to consider renewable energy as long as adoption costs (price and hassle) are low.

Aggregators/Cooperatives. Aggregation schemes to bring down costs could be one way to address the small commercial and residential sectors. Agricultural, housing, and food cooperatives naturally lend themselves to cost-saving aggregation schemes, and could provide significant return on a limited level of outreach.

Target Audiences for RECE Campaign

To effect the greatest market transformation possible, the RECE campaign should focus first on the consumers most likely to purchase renewable energy.

- Residential consumers (starting with environmentalists)
- Institutional sector (primarily local and regional governments, as the religious sector is already organizing)
- Selected businesses (including large industrial and commercial consumers), trade groups, cooperatives

Most efforts will focus on IOU territories, with selected outreach to non-IOU areas that have expressed interest in renewable energy .

The Commission efforts should complement the CPUC and the Electric Education Trust activities and other government programs to inform the public and promote renewable energy. In the first 15 to 18 months the campaign will focus on reaching "early adopter" citizens and organizations, who can themselves help spread the word about renewables. Having built a solid base of success, and tested messages with these audiences, RECE can then reach out to broader masses of residential customers.

II. Situation Analysis: Emerging Renewable Technologies

Market Climate

High Consumer Interest

The “emerging” distributed generation (DG) technologies eligible for the Commission’s Buydown Program—PV, solar thermal, small wind turbines, and fuel cells—enjoy better name recognition and popularity than some of the renewable central station technologies such as biomass and landfill gas. Unlike grid-based renewable energy, an on-site renewable system is visible and captures the imagination. It is demonstrably “green”—consumers are assured they are receiving “clean” electrons while their system is operating. And, while customer-owned-and-operated systems help society at large, they also offer private benefits, including the appeal of displaying environmental commitment in a way that wins the admiration of friends and customers.

Cost Still a Formidable Hurdle

Because production volume for these fledgling technologies is low, system costs are still prohibitively high without extensive subsidies. For example, a 3-kW rooftop PV system (sized for a typical home) requires a net capital outlay of from \$9,000 to \$20,000—*after* the maximum rebate offered by the Commission’s Buydown Program. Even with California’s relatively high electricity prices, net metering, and passage of AB 1755¹⁰ to renew the property tax exemption, emerging technology systems typically have long payback periods.

Emerging renewables cannot yet be sold on the basis of cost-effectiveness over time. Nor can they yet compete with renewable energy in terms of environmental benefits per dollar. Without significant help in bringing down costs, customers for these systems will be limited to highly motivated pioneers who are interested not only in cleaner power but also in promoting the specific renewable technology.

Market Research Required

On-site generation makes economic sense for customers in remote locations who would otherwise have to pay for connection to the grid; naturally, these customers have accounted for the majority of system sales. The economics are completely reversed for the target audience of the Buydown program—customers who are already connected to the grid. The Commission will be contracting for market

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research (under separate funding) to determine promising initial audiences for grid-connected emerging renewables technologies.

Larger Systems More Popular Than Residential-Size Systems

To date, most of the calls to the Buydown program's information hotline have come from residential customers. However, actual sign-ups have been dominated by the commercial sector. Buydown funds for systems larger than 10 kW have been rapidly committed, while funds for residential-sized systems—the mandated priority of the Buydown program—are undersubscribed.

It is probable that economics were better for the larger projects, which may have been co-subsidized by federal TEAM-UP¹¹ (Building Technology Experience to Accelerate Markets in Utility Photovoltaics) funds. And unlike residential customers, the commercial class is subject to demand charges that can be reduced by solar systems which generate during peak hours.

Participation in all the Buydown's size categories could be improved with greater education and publicity. But it is clear that the smaller systems will require significant support if the allocated funds are to be used as designated by SB 90.

Supply Side Not Yet Coordinated

Solar and wind technologies benefit from strong industry associations that can provide sound assistance to consumers. Yet stakeholders have expressed concern that increased consumer demand could rapidly overwhelm existing supply channels. Channel ties are weak, with little manufacturer support for local retailers. Moreover, grid-connected installations require the participation of the local electric utility. Some customers have had difficulty locating the right utility department to arrange the hook-up, and waits for grid connection have been long. Net metering also requires updated training of building inspectors.

It is imperative that the supply side be fully prepared, as it is crucial during market introduction that early customers have a positive experience free of frustration.

Commercial Status of Qualifying Technologies

Photovoltaics (PVs)

To date, California has 132 kW of grid-connected PV capacity. PV systems to date run from \$8-\$18/W, but with volume orders, can attain \$6/W (before the Buydown).

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The advent of microinverters allows for modularity, whereby customers can build a PV system in 100-W increments, one panel at a time as they can afford. While such an approach does not make PV more cost-effective as an energy source, it does alleviate the need to raise as much capital, enabling more consumers to “do their part” to support a PV market.

Building-Integrated PV (BIPV) holds the potential for greater cost-effectiveness than retrofit PV units. With BIPV, solar panels are integrated into the original roof construction, avoiding the need for other roofing materials. This strategy also mitigates concerns about aesthetics, which can be a barrier to PV installations. BIPV panels are currently less efficient than other solar cells, but their overall cost-effectiveness may be greater. Commercial buildings designed by architect/engineers who are accustomed to using attractive and more expensive materials would be a potential application for this technology.

Small Wind Turbines (<10 kW)

California has very little grid-connected small wind capacity. Per-kW costs vary with system size, generally ranging from \$2,500–\$4,000/kW. Systems as small as 300 W are now available for \$1,000–\$1,500. Though not as cost-effective as larger systems, such turbines enable more consumers to contribute to developing a market for small wind power.

Solar Thermal Electric

To date, California boasts almost 360 MW of central-station, grid-connected solar thermal power. As yet, no solar thermal application has qualified for the Buydown program. Power tower designs are at the demonstration stage only; as these systems will be much larger than 100 kW, the market will be industrial, agricultural, and possibly large commercial. A parabolic trough system was available in the 1980s, but the manufacturer went bankrupt. A parabolic dish design connected to a Stirling engine is now completing research and development from Science Applications International Corporation. This hybrid system would help industrial/commercial/ agricultural customers reduce their demand charges, yet still be useful during non-peak hours. But like all solar thermal systems, it requires direct normal insolation, and so the market will be geographically limited.

Fuel Cells

The installed capacity of grid-connected fuel cells in California is approximately 1,600 kW. Thus far, only one fuel cell model--a 200 kW phosphoric acid cell by

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ONSI--qualifies for the Buydown program. Reservations for this model account for 1,000 kW in new capacity.

Target Audiences for RECE Campaign

In support of the Buydown program, the campaign will focus on the very small, residential-scale systems under 10 kW, which will require significant promotion if Buydown subsidies are to be used as designated by SB 90. This decision effectively centers the program on PV and wind systems, as opposed to solar thermal and fuel cell systems, which are available only at larger scale.

The campaign will seek to remedy weaknesses on the supply side of the market, while targeting promising audiences on the demand side. These audiences will be determined based on market research findings. However, we anticipate that for PV, early markets will be both urban and rural, including:

- Homes of well-off environmentalists/technophiles
- New office buildings (high-tech look, reduced demand charges)
- New housing developments (volume purchase and installation brings down costs), real estate and housing cooperatives
- Consumers concerned about interruptions of grid-supplied power

For wind power, zoning restrictions on height and potential concerns over noise and aesthetics will restrict applications to rural areas; thus we anticipate the primary audience for wind to be rural environmentalists and technophiles.

Endnotes

¹ Chapter 854, Statutes of 1996.

² Chapter 905, Statutes of 1997.

³ Ibid., Section 4, SB 90; codified at Public Utilities Code Section 383.5(e)(2).

⁴ *Guidebook: Renewable Technology Program, Volume 3: Emerging Renewable Resources Account*, California Energy Commission, January 1998, Table 2, p. 5.

⁵ pub. L. 95-617, Title II, Section 210, November 9, 1978, 92 Stat. 3144.

⁶ *Policy Report on AB 1890 Renewables Funding*, California Energy Commission, March 1997, Figure 1-1,

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p. 4.

⁷ Market studies include the following:

- Baugh et al., "Research Fuels Public Service Co. of Colorado's Development of a Customer-Driven Renewable Energy Program," *Quirk's Marketing Research Review*, May 1994.
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⁸ Data from CPUC memo, October 20, 1998.

⁹ See studies cited in (6).

¹⁰ Chapter 855, Statutes of 1998.

¹¹ TEAM-UP is a partnership of the utility industry and the U.S. Department of Energy that helps develop commercial markets for a wide range of solar photovoltaic technologies through cost-sharing for selected PV business ventures in the United States.